155-1 THE PREMISE

__Greenspace,__ land and water reserved undeveloped, is essential to life in Rhode Island, today and in the future. It offers sustenance, promotes public health, safety and welfare, strengthens the state's economic vitality, and makes possible a quality of life desired by Rhode Islanders. __Greenways,__ corridors of open space following rivers, coastlines, and rail or utility lines, link public lands and connect habitats and communities. Creation of an integrated network of protected greenspace and connecting greenways is critically important to Rhode Island's future.

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Greenspace and the resources it shelters are, literally and figuratively, the foundation of life in Rhode Island. The state's magnificent bay and its rivers are its lifeblood; the forests, its lungs; and the special places treasured and visited by generations of inhabitants, perhaps as close to an eternal soul as any geopolitical entity can attain.

Greenspace has served, and continues to serve, Rhode Island well. This plan asserts that the future progress of Rhode Island and its people will remain intertwined with the destiny of the state's greenspace resources. In many ways, Rhode Island's prospect depends as much on identifying and securely protecting the essential fabric of greenspace permeating the state, and on guaranteeing the public's right to connect with greenspace, as on any other single factor. Rhode Islanders can have scant hope of living healthy, productive, and rewarding lives, and of having an increasing standard of living in the future if the basic environmental resources that support life and commerce are allowed to erode, or if their time-honored intimacy with the outdoors is severed.

For the benefits provided today by greenspace, we are indebted to our predecessors whose foresight and sacrifice in the cause of land protection gave us such treasures as the ring of major parks encircling metropolitan Providence, the extensive woodland management areas, the Scituate Reservoir watershed, and the Bay Islands Park. In turn, we owe the generations of Rhode Islanders who will follow us a responsibility for similar vision and investment. It is our duty to

insure that the capability of Rhode Island's greenspace to provide essential social values and benefits for its citizens extends as far into the future as it is possible for our will and deeds to reach.

1-1 Assumptions

The Greenspace and Greenways Plan is grounded upon the following points:

- That public policy objectives for open space protection must be based upon securing the public's fundamental interest in continued enjoyment of the values and benefits society derives from open space;

- That open space protection should be planned for and executed in the context of the complete systems, resources, and landscape units, which secure the public benefits of open space;

- That, while our knowledge and information remain imperfect, our tools are sufficiently advanced to allow many essential natural and cultural values of open space to be geographically delineated so that they can be protected for the benefit of present and future Rhode Islanders;

- That public access to and usage of the outdoors is a public goal concomitant with resource preservation that can and should be promoted, where possible, through the comprehensiveness, extent, location, and configuration of the areas preserved as open space;

- That the limited resources available to protect open space should, where possible, be focused on an integrated system, which achieves multiple objectives of public policy and affords multiple values and benefits to the state's citizens; and

- That definition of an integrated system of greenspace and greenways, based upon the above principles, is instrumental to protecting resources essential to the health, safety, and welfare of present and future Rhode Islanders, and is a proper, and desirable exercise of state governmental authority and leadership.

The plan establishes a Greenspace and Greenways system, as a goal of state development policy. More significantly, it attempts to define a vision of Rhode Island's future landscape in which protection of critical resources is ensured, and opportunities for public enjoyment of the state's outdoors are secured.

1-2 A Response to Values....The Public Purpose in Protecting Greenspace

> **Our purpose, then, is, not to create new luxuries, but to preserve old necessities; not to add new outlets for public expenditure, but to save untold financial burdens. It is to develop the places most valueless, commercially, so that they may be most valuable for the cause of humanity. It is to stimulate growth along proper lines.**[1]

Why protect greenspace? The simplest and truest reason is as much pragmatic as altruistic. Many of society's needs and desires depend upon the land and water that comprise so-called "open" or greenspace. These benefits comprise the social values of greenspace.

From the verdant woodlands of the rural towns bordering Connecticut, to the placid coastal ponds of *South* County, from the urbanized banks of the Blackstone River to the idyllic seacoast farm fields of the East Bay, Rhode Island's land and water silently and steadfastly serve our needs--from the most basic to the highly trivial--for resources, for space, for venues, for play, for purification, for connection, for conveyance, for discard, for disposal. The land and water performed their functions and yielded their bounty long before we--the present citizen-stewards of Rhode Island--arrived. Through their many substantial contributions, our land and water resources set the stage for the accumulated wealth and social progress we now enjoy. Properly protected and managed, the natural fabric of green will continue to tirelessly provide a multitude of socially-beneficial values far into the future.

1-2-1 Price versus Value

Unfortunately, only one value of greenspace, its utility and desirability as a setting for human habitation and economic activities, is generally considered by our economic system. Conventionally, the "value" of any parcel of open land is expressed by its *price*--set by the "invisible hand" of the free market; the coming together of willing sellers and desirous buyers. More than any other factor, the real estate value of open space, expressed by price, reflects its location--its proximity to public infrastructure such as highways or utilities which facilitate its usage, or to amenities such as a highly-regarded public school system, the coastline or other recreational resources. Be it intrinsically wasteland or eden, greenspace that is in the "right place", in a real estate sense, can be immensely valued by the market for development.

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1 Metropolitan Park Commission of Providence Plantations *Fifth Annual Report to the General Assembly of Rhode Island.* 1909. p.12.

Seldom quantified by the private market, two other dimensions of value intrinsically exist in any parcel of open land. One is its natural resource value--its physical and biological parameters, many of which are also a function of its location. Not location so much with reference to human activities, but rather relative to landscape features, such as the parent rockbodies, water bodies and coastlines, and the topography. These determinants tell how a given parcel of land fits into the natural scheme of things, how valuable it will be for wildlife of certain types, how suitable for different types of vegetation, how much water it will retain or allow to run off.

A second non-traditional value of land is its cultural significance--this a function of each parcel's location on the continuum of time. Our experience of the land is over one short interval of time; but the land retains something--in the artifacts and stories left behind--of all that has happened on it over the long course of its occupancy and use by humans. Some of this happened so long ago that evidence must literally be unearthed and intensely studied to be understood. Other, historically more recent, events in the human drama have left prominent physical remnants on the land--features we revere and cherish for what they tell us of people or events of the past: colonial structures, champion trees spared by early settlers; factory system villages; old churches and meeting houses; the ubiquitous stone walls. These are all aspects of the land's cultural resource or heritage value.

1-2-2 Defining the Public Interest in Greenspace

The natural and cultural values of land constitute the public interest in greenspace. Because they often have little significance to a single prospective purchaser, the private market price of real estate is frequently a poor measure of these values. Rather, the land's natural and cultural values are more of the character of public goods: their mere existence provides benefits to all members of society without exclusion; but, as the land is divided into marketable parcels, the values, unless explicitly recognized and protected, are likely to be extinguished or greatly diminished in the process.

This plan presumes that, at minimum, the public interest in greenspace embraces the following values. They are of great importance to Rhode Island's future. Land and water resources crucial to perpetuation of these values must be protected as components of the greenspace and greenway system.

Pure Water

Greenspace is essential to the integrity and proper functioning of Rhode Island's hydrologic cycle. It traps, stores, and conveys water. It is pervious, like a sponge, intercepting and stockpiling both surface and ground waters. Just as importantly, it provides a natural buffer and filter for water as it flows through the environment, protecting and restoring its purity. Vegetated land and wetlands, retained surrounding waterbodies and overlying groundwater aquifers, cleanse runoff of much of its pollution load before it can degrade receiving waters. The velocity of surface runoff is decreased, allowing suspended particles to settle out, and nutrients to be captured and utilized by the growing plants. Even relatively narrow greenway strips of natural vegetation along streams

can have positive effects upon the water quality by providing shading, which increases the amount of oxygen the water can carry during critical high temperature periods.

The purifying functions of greenspace are critical for public water supply. All Rhode Islanders, regardless of where they live, need clean, safe drinking water to live. Upwards of 75 percent of us rely upon a public surface supply system for the water we need; the remaining quarter obtain water from the ground--either via individual private wells or from a public supplier[2]. Every drop of water that eventually touches our lips starts as a drop of rain on the land, and follows a journey--whether of feet, or many miles--that leaves it vulnerable to contamination by the effluvia of urban society--from bacteria to toxic industrial chemicals. Reservation of water supply resource lands as greenspace, be they surface watersheds or lands overlying subterranean aquifers, substantially reduces the risk that our critical water supplies will be contaminated.

Rhode Island's commitment to clean water is legion. In recent years vast sums have been expended on treatment facilities and tremendous progress made in restoring the quality of the state's inland waters and Narragansett Bay. In the state's most urbanized areas, where the natural filter of greenspace has been eliminated, expensive remedial solutions, such as runoff interception and detention basins, are now being deployed. Upwards of a half billion dollars in additional capital investments in wastewater storage, conveyance and treatment facilities may be needed to restore the quality of upper Narragansett Bay and the urbanized rivers that flow into it[3]. The need for such expensive structural "retrofits" must be avoided or minimized in areas of the state that are yet to be developed. Retention of sufficient greenspace, wetlands, and wooded buffers, which preserve the drainage and filtration functions of the natural landscape, can protect water quality naturally.

A biologically diverse environment

The essential green fabric is a tapestry of life. It is home not only to humans but to thousands of other species. The largest and most common are familiar to us; we call them plants and wildlife. The tiniest, micro organisms, pique the interest of only the most intent researchers. Other species flourish and perish anonymously, escaping entirely through still gaping holes in the net of human cognizance and comprehension. Throughout history the human mission has been one of reducing natural complexity, simplifying the environment to suit human needs and tastes. Only recently

2 U.S. Geological Survey. *National Water Summary--Rhode Island*. 1985. p. 373.

3 Narragansett Bay Project, and R.I. Division of Planning. *Comprehensive Conservation and Management Plan for Narragansett Bay*. 1992. p. 4.75.

have we fathomed the most exposed and direct of the myriad interrelationships in the web of life; other links in the chain, more complex, and likely crucial to our own existence, still elude our science and investigation. But, from what we know and what we are learning, it is increasingly clear that maintaining environmental diversity and complexity is unquestionably in humankind's interest.

Rhode Island is blessed with an environmental diversity that belies its compact size. Its glacially sculpted landscape, situation at the oceanic--continental interface, and temperate climate yield a rich variety of marine, terrestrial, and aquatic habitats and an abundance of species. The state's woodlands, fields, lakes, streams, marshes, and coastal waters harbor over 435 species of birds, mammals, fish, reptiles and amphibians. More than 1,500 native species of vascular plants have been identified in the state. Through proper management, many of Rhode Island's wildlife species are rebounding in numbers, and one or two long-extirpated species have recently returned. A number of species are **not** faring well, however, and continue to decline; 12 animal species and 53 plant species are listed as Federal or State Endangered by the Rhode Island Natural Heritage Program[4]. Less is known about the state's invertebrates, fungi, algae, lichens, mosses and liverworts; a few species (primarily insects which vex our agricultural endeavors) have been studied intensively but what we know about these fellow beings is dwarfed by our ignorance.

The benefits provided us by plants and animals are significant, and continue to expand as science reveals new properties and utilities. Plants provide many social benefits: food, fiber, energy, and medicinal derivatives being the most direct and valuable. Direct benefits of wildlife include provision of food, hides, and other consumables. Indirect benefits are equally significant: our flora and fauna support a diversity of outdoor recreational pursuits enjoyed by up to 30 percent of Rhode Islanders, including hunting, fishing and nature observation and photography. Wildlife also makes important contributions in helping control the populations of nuisance species such as rodents and mosquitoes, in research and environmental education, and as indicators of the overall quality of the environment. Beyond tangible benefits, plants and wildlife also provide aesthetic and spiritual values; captured and conveyed through art, literature, music and other cultural interpretations. The beauty and joy brought to human existence by flowering plants and by the songbirds' tune is undeniable, if intangible.

Locally-produced food, fuel and fiber products

Making a livelihood from the forests, fields and waters was the occupation of the earliest "Rhode Islanders"--the Narragansett Indians. Their communities and economies, based upon subsistence hunting, gathering and tending native crops, flourished for centuries before Roger Williams--the founder of colonial Rhode Island--arrived in 1636. In the first two centuries following European settlement of our shores, the natural resource-based sector continued to be the mainstay of the colonial and early state economies. Today, the hard work of producing food, fuel and fiber from the land remains a traditional lifestyle kept alive by many Rhode Islanders. And while no longer pre-eminent, resource production remains an important component of Rhode Island's economy.

4 Enser, Richard. R.I. Natural Heritage Program. Personal Communication. 1993.

The state's 1992 agriculture output was valued at $141 million[5]. Fishermen landed a catch of finfish and shellfish valued at $83 million[6]. The state's primary and secondary forest products industry employed approximately 5,000 persons, and provided a wage base of $70 million[7]. The value of products derived from Rhode Island's forests was an estimated $40 million in 1984[8].

Our productive resource lands are also a strategic reserve for certain commodities. While it is impossible to produce indigenously all the food, fiber and fuel products needed by the state's citizens, the retention of resource-producing capabilities does provide a cushion for supply disruptions, at least over the short term. This was demonstrated when thousands of Rhode Islanders turned to wood as their primary or supplemental fuel source in response to the national energy shortages and price shocks of the 1970s and 80s. Fuel wood production from Rhode Island's forests temporarily skyrocketed from under 10,000 cords to over 200,000 cords in a few short years[9]. Similarly, in-season, locally-produced crops out-compete the factory-farm-produced national supply in both price and quality. The roadside farmstand is an icon of Rhode Island's rural landscape, and the Sunday afternoon drive into the "country" to get tomatoes or sweet corn, or to pick berries, a pleasant summertime outing for thousands of Rhode Island families. Indeed, if it were not for Rhode Island-grown, would any of us remember what a *fresh, "real"* tomato tastes like?

Recreation, Leisure, and Learning

Greenspace, our land and water, is the venue for all forms of recreation, leisure, enjoyment, and education in the outdoors.

Outdoor Recreation

Rhode Islanders, like all Americans, love the outdoors. The six recreation guide plans which Rhode Island has prepared since 1965 have consistently documented this love, and its expression via pursuit of a myriad of outdoor activities. In 1990, recreational usage of the state's outdoors by Rhode Islanders was estimated to be an astonishing 200 million activity occasions--nearly one recreational activity every other day per resident[10]. From the tens of thousands who bask on the

5 R.I. Department of Economic Development, *The Rhode Island Economy*. 1993. p. 15

6 *Ibid.*

7 Rhode Island Department of Environmental Management, Division of Forest Environment, *et al*. *Primary Wood Producers Directory*. 1990.

8 R.I. Office of State Planning and R.I. Division of Forest Environment. *Rhode Island Forest Resources Management Plan*. 1984. p. 2.21.

9 Op. cit., pp. 1.17 -- 1.18.

10 R. I. Division of Planning and R.I. Department of Environmental Management. *Ocean State Outdoors: Rhode Island's Comprehensive Outdoor Recreation Plan.* pp. 4.12 and 4.20.

state's expansive ocean beaches on summer's warmest days, to the solitary and silent ice fisherman on January's frozen lakes, greenspace provides the common bond: the setting for people to access and interact with their environment in their individual and personal fashion. A place to relax; to be among family and friends and to forget--however briefly--the worries and compulsions of the world. A place to compete; to pit one's abilities against those of others, or one's wits against the elements, in strength and character-building activities. The social benefits derived from such recreational activity are not readily quantified, but unquestionably include improved public health and vigor, reduction of stress, and quite likely, the development of well-rounded and fully-engaged members of society.

Tourism

Tourism, a billion plus dollar contributor to the gross state product, is grounded upon Rhode Island's distinctive natural and cultural features and on the public's ability to access and use them. Our magnificent Narragansett Bay and ocean shoreline, swimmable beaches, fishable streams and ponds, rural farmscapes, and autumnal forest-foliage combine with historic villages and sites, heritage-rich "working" rivers, and preserved architectural marvels to constitute a strong magnet drawing tourists to our state. Our guests "use" our outdoors in their quest for recreation, relaxation, leisure, and cultural enrichment and in the process, help enrich the state's economy, providing an estimated $1.1 billion in retail sales[11] income for Rhode Islanders in 1991. Expenditures by visitors to Rhode Island for fishing, hunting, and non-consumptive wildlife recreational activities alone were estimated at $52.5 million in 1985[12]. If we succeed in preserving key elements, and integrating visitor support services, tourism should continue as a rising star of the state's economy. The Nature Conservancy's designation of Block Island as one of only twelve "Last Great Places" in North America will help bring "eco-tourists" from around the world to witness the diversity of life in our unique island ecosystem. The creation of the Blackstone River Valley National Heritage Corridor will do the same for all interested in the story of our nation's industrial past.

Environmental Education

Greenspace provides a setting for teaching and learning about the wonders and workings of our natural environment. Our woods, wetlands, shorelines, and fields are all open-air classrooms where our innate curiosities about nature can be nurtured and gratified. Careful observation and instruction on natural processes and cycles reveal the diversity, complexity and inter-connectedness of ecosystems. Even casual and occasional exposure to the natural world can reveal wonders which lead to new personal understandings of one's place in the natural order.

Many Rhode Island schools have active environmental education curricula, a number based upon the successful "Rhode Island Naturally" teaching guide developed by the Audubon Society of Rhode Island. The Narragansett Bay Classroom of the University of Rhode Island provides environment-based instruction to hundreds of Rhode Islanders each year. Brown University's

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11 R.I. Department of Economic Development, Research Division. *The Rhode Island Economy*.1993. p.15.

12 U.S. Fish and Wildlife Service. *1985 National Survey of Fishing, Hunting, and Wildlife Associated Recreation*. Table 93.

Center for Environmental Studies has won national acclaim for its innovative and activist programs. In recognition of the importance of environmental education, and its dependence upon protection of and access to open space, the R.I. Natural Heritage Preservation Commission considers the proximity of target sites to schools and the sites' suitability for environmental education when awarding grants and loans to local governments for greenspace acquisition.

The venues, resources, and materials needed to continue the important mission of environmental education can only be found in the outdoors. The need to promote wider understanding of the lessons of nature, and of each individual's role and responsibilities within it, is growing in concert with the very distance and isolation from nature which our urban/technological society increasingly enforces. The emergence of transcendent environmental concerns such as ozone depletion, deforestation and desertification, and global warming make urgent the need for each citizen to become more aware of the impact his or her demands have upon planet Earth's natural resources and systems, and ultimately upon the sustained habitability of the planet.

Economic Capital

Rhode Island's natural endowment also provides essential working capital for its economic base. This dependence was clearly evident in the past when agriculture, commerce, and basic industry dominated the economic picture; but it is only slightly less true today. While diminished from their past dominance, the natural resource-based industries--fishing, agriculture, and forest products--continue to be traditionally significant livelihoods in certain locales; and, as indicated previously, are important to the state's overall economic diversity. Guaranteeing an abundant supply of pure water remains a fundamental plank of state industrial policy and could be increasingly important in attracting targeted growth sectors such as biotechnology and micro-electronics. Greenspace, and access to it, are also central to the state's promotion of its engaging lifestyle and recreational amenities as competitive advantages in attracting and retaining "Information Age" industries and the talented employees they need. A high quality of life for employees was identified in a 1989 national survey of chief executive officers as the third most important factor (following access to markets and availability of skilled labor) in their business location decisions [13]. While we strive to increase Rhode Island's competitiveness on labor costs, energy, and other production factors, we must simultaneously insure that the environmental and lifestyle advantages it already enjoys over many areas are not allowed to diminish.

Hazard Avoidance

Greenspace mitigates the risk to life and property posed by natural hazards. In cases where the risk is great, and the consequences high, reservation of such areas as permanent greenspace provides a social benefit in avoided loss of life, injury, and property damage.

Flooding is the greatest natural calamity Rhode Island has faced historically, and flood hazard areas are present throughout the state. Coastal barrier beaches, coastal ponds, and the wetlands and lowlands surrounding them are the state's front-line defense against the assaults of hurricanes

13 1989 Cushman and Wakefield Suvey of CEOs, cited in *Economic Impacts of Protecting Rivers, Trails and Greenway Corridors.* National Park Service. 1990. p. 6-3.

and "northeasters" on the coastline. Where undeveloped, these features absorb and dissipate the energies of wave and wind attack, affording a measure of protection to inland areas. In similar fashion, riverine wetlands and riparian lowlands, where they remain intact, reduce the magnitude and velocity of flooding.

Protection of life and property by reserving flood risk areas as open space has been a successful strategy in two Rhode Island instances: a riverine floodplain and a hurricane-susceptible coastal barrier. In the early 1960s the State purchased East Beach in Charlestown--a three mile long strip of low-lying barrier beach--and created the Ninigret Conservation Area. A significant consideration in this decision was preemption of human occupancy on this vulnerable coastal barrier, which had been swept clean of development in previous hurricanes. Twenty years later, the State, the U.S. Army Corps of Engineers and the City of Warwick cooperated in the acquisition of flood-damaged properties in the Belmont Park neighborhood along the Pawtuxet River. As in the case of Ninigret Beach, the area is now managed as a greenspace and recreation area, and no further risk to life or property exists.

In addition to flooding, Rhode Island is susceptible to some risk of earthquakes, sea level rise, radon infiltration, and severe weather events such as tornados, hailstorms, drought, and lightning. However, the geographic dimensions of these natural hazards are, at this stage, much less well understood or predictable than flood risks.

Community Character and Aesthetics

The aggregate amount and distribution of greenspace largely defines, in the physical sense, the character of communities. Cities become *urban* as they progressively and near completely replace the natural landscape with human-engineered structures and built environments. Areas remain *rural* only if the *un*-built landscape retains dominance--remaining a setting for, rather than being surplanted by, buildings and roads. Effectively deployed as a state growth management tool, greenbelts, or broad expanses of greenspace in which only open space and low intensity land uses are allowed, could separate and differentiate urban from rural environments, allowing each to retain its distinctive characteristics.

Preserved greenspace, along with artifacts of heritage and architectural landmarks, is also crucial to retaining what has been called "a sense of place" in our communities; a distinctiveness, integrity, and continuity allowing residents to feel familiarity and identity with the physical features of their everyday environment. Be it the farm that has been in the same family for generations, the town green, an urban community garden, or just a stand of pines that "*has always*

been there" atop the ridge, familiar natural settings play a considerable role in establishing the spatial limit of what we consider our community, our place in the world.

The creation and management of public greenspace can be a powerful force in the actual creation of *community,* that feeling of shared interest and outlook, by serving as the common ground that brings individuals together to define shared objectives and to cooperate in their attainment. The work of the Southside Community Land Trust in Providence illustrates the power of greenspace as a catalyst in inspiring community, and in addressing neighborhood problems that extend far beyond the traditional mission of land protection or reclamation.

Retention of greenspace within communities also contributes to the aesthetics of the built landscape. A greensward threaded through a densely developed urban neighborhood provides visual and physical relief from the the jumble of concrete, bricks, and pavement comprising our cities. Such a break in the pattern of the human-made landscape may be a neighborhood's only reminiscence of nature, providing the solitary escape for eye and mind from an otherwise harsh and garish visual pattern. Something as simple as a row of urban street trees can work wonders in separating and softening the "hard edges" of development.

In rural communities, greenspace retained in the right amount and locations can provide a distinct boundary between areas to be intensively developed, such as village centers, and the surrounding, more rural, landscape. Effectively employed as part of a community development strategy, such green buffers prevent the monotonous sprawl of uniform-density development across the entire landscape--and the consequent loss of landscape diversity.

The Spiritual

Many greenspace areas also have religious, spiritual or ceremonial significance.

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The above enumeration, limited by our contemporary understanding of natural processes, and by its anthropocentric bias, far from exhausts the values which greenspace provides to Rhode Island. It does, however, make clear that things important to all Rhode Islanders alive today, and all that will follow, are embodied within the woods, the fields, the fens, the rivers, the bays, the ponds, the hills, the lakes, the beaches, the bogs, the shores, the marshes, the islands, and the swamps of

our small state. From the most direct dependency to the most obscure connection, our fate is, in many consequential ways, inseparably linked to the fate of the good, green land we daily tread.

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